Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of Part 22 of the	)	CC Docket 92-115
Commission's Rules governing	)	
the Public Mobile Services	)	
	)	

To: The Commission

Petition for Reconsideration of The Ericsson Corporation

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Table of Contents

Summary

Ericsson fully supports the efforts of the cellular industry to combat the growing problem of cellular fraud and is committed to assist in a resolution of the problem. However, Ericsson does not believe Section 22.919 will effectively combat the problem since there are too many cellular phones in the marketplace to which Section 22.919 is not applicable. In addition, because Section 22.919 prohibits any party, including manufacturers and carriers, from making any software or firmware changes to cellular phones, cellular service providers will not be able to upgrade their systems or provide new and enhanced services through software changes programmed into cellular phones. System changes will be made available only to those subscribers who purchase new terminals.

Ericsson supports CTIA's previously expressed position that mandatory authentication should be required. Authentication provides two significant benefits. First, it is an effective means of preventing cellular fraud. Second, it will allow carriers to upgrade their systems by making easy software changes to subscribers' cellular phones. In order for all segments of the cellular industry to reach a

consensus on a rule which will prevent fraud without having an adverse impact on the industry as a whole, Ericsson supports the creation of an Advisory Committee to participate in a Negotiated Rulemaking proceeding on this subject. In the alternative, the Commission should allow manufacturers and their authorized agents to make changes to software and firmware of mobile transmitters provided the mobile transmitters are able to comply with authentication standards adopted by recognized industry standards organizations.

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Petition for Reconsideration

The Ericsson Corporation ("Ericsson"), by its attorney, and pursuant to Section 1.106 of the Commission's rules, hereby submits its Petition for Reconsideration (hereinafter "Petition") of the *Report and Order* in CC Docket No. 92-115[1]. Ericsson's Petition is limited to the Commission's adoption of Section 22.919 which deals with electronic serial numbers ("ESN") in cellular mobile transmitters. Specifically, Ericsson requests that the Commission convene an Advisory Committee to engage in a Negotiated Rulemaking proceeding in which affected industry parties can adopt rules designed to effectively prevent cellular fraud. In

[1] *In the Matter of Revision of Part 22 of the Commission's Rules Governing Public Mobile Services*, CC Docket No. 92-115, __ Rcd ___ (released September 9, 1994), 59 FR 59502 (November 17, 1994).

the alternative, Ericsson requests that the Commission reconsider Section 22.919 of the Commission's rules by allowing manufacturers and their authorized agents to make changes to the software and firmware programmed in mobile transmitters, provided that mobile transmitters are able to comply with authentication standards adopted by recognized industry standards organizations. In support of its Petition, Ericsson states the following:

I. Introduction

Ericsson acknowledges that the intended purpose of promulgating Section 22.919 of the Commission's rules is to combat the very serious problem of cellular fraud committed by illegally tampering with ESNs in cellular mobile terminals[2]. Ericsson applauds the Commission's efforts to help combat cellular fraud as it is clearly a problem of growing magnitude and one which is contrary to the public interest. Ericsson has been an active participant in organizations whose function is to find technical and other solutions to the problem of fraud such as CTIA's Fraud Task Force and the TIA TR45 Committee.

[2] In this pleading, Ericsson will use the term "mobile terminal" to refer to both mobile and portable cellular telephone terminals or transmitters.

Despite Ericsson's full support of the efforts of the cellular industry and the Commission to combat cellular fraud, it believes adoption of Section 22.919 will not accomplish its intended purpose. Moreover, Section 22.919 will have unintended harmful effects on the cellular industry. As a result, Ericsson requests the Commission to reconsider Section 22.919 as described more fully below.

II. IMPACT OF NON-ALTERABILITY OF ESNs

As presently written, Section 22.919 of the Commission's rules represents a virtual prohibition on any electronic changes being made to cellular terminals. The rule prohibits the integrity of the terminal's operating software to be alterable; it requires the ESN to be factory set and not capable of being altered, transferred, removed or manipulated in any manner; and it requires the mobile transmitter to become immediately inoperable if any party, including a manufacturer, attempts to remove, tamper with or change the ESN, the logic system or firmware of the terminal. The impact of such a draconian rule will cause significant hardship to consumers, cellular carriers and manufacturers, without any significant corresponding

increase in the cellular industry's ability to meaningfully combat fraud.

From a consumer's standpoint, the present ability of a manufacturer or its factory authorized service representatives to program cellular terminals makes it very easy to replace terminals which are not operating properly. For example, if a subscriber's terminal is not operating properly, the subscriber can go to a factory authorized representative, obtain a new terminal on the spot and have the new terminal reprogrammed so it contains the exact same electronic "personality"[3] formerly found in the old terminal. This process can be accomplished in a matter of minutes.[4]

Effective January 1, 1995, a subscriber in the situation described above will still be able to obtain a new terminal if the old terminal is defective. However, because a new ESN will have to be obtained, the new ESN information will have to be transmitted to the cellular carrier who will

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[3] The electronic personality of a cellular terminal includes not only the ESN but a substantial amount of information programmed into the terminal by the subscriber such as his or her personal and/or business telephone numbers.

[4] Repair/replacement programs and the technology to make quick and easy ESN and other electronic changes to cellular terminals have been developed at the insistence of cellular carriers who do not want their subscribers to be inconvenienced in any manner by defective terminals.

have to program it into its database. This will result in a lengthy period of time during which the subscriber will have no service. The subscriber will also be forced to reprogram into his or her terminal any personal or business telephone numbers formerly stored in the phone.

A much more significant problem with Section 22.919 is the adverse impact it will have on the ability of cellular carriers to be able to provide their subscribers with system upgrades accomplished by easy programming of cellular phones.

Section 22.919 prohibits any entity, including cellular carriers or manufacturers, from altering, removing, tampering with or changing the logic system, firmware or operating software of a cellular terminal. As explained in Ericsson's Reply Comments in this proceeding[5], this rule will have the unintended impact of preventing any system upgrades being made through software changes:

> In digital cellular mobile units the logic system and firmware provide the digital signal processing instructions which govern the operation of the terminal. In addition to converting electrical signals to voice, the logic system and firmware are responsible for a variety of functions, including but

[5] See, *Reply Comments of The Ericsson Corporation*, CC Docket No. 92-115, filed November 5, 1992.

> not limited to, those which affect the timing of the terminal; the sequence of operations; and the allocation of the terminal's memory and ability to access the same. In effect, the logic system and firmware of a cellular mobile transmitter govern virtually every aspect of the unit's operation.
>
> The voice quality and overall performance of today's digital mobile units rely heavily on the operational instructions programmed into the mobile's logic system and/or firmware. When a manufacturer wants to upgrade a digital terminal to provide new functions or enhancements to existing functions a software change to the logic system or firmware is implemented. Literally, interpreted, Sections 22.919(b) and 22.919(c) would prevent such software changes from being made--even if by the original manufacturer.

The practical impact Section 22.919 will have on the cellular industry's ability to upgrade systems is demonstrated as follows. The use of a digital control channel will enable cellular carriers to offer new enhanced services to subscribers such as, for example, a short messaging service. If carriers, manufacturers or authorized agents are allowed to make changes to the software and/or firmware of a cellular terminal, such services can be made available to subscribers quickly and efficiently through an easy software upgrade of the terminal. Absent a change to

Section 22.919, effective January 1, 1995, neither a manufacturer, its authorized service representative nor a cellular carrier will be able to make such software changes. The only way a carrier will be able to offer a subscriber that type of system enhancement will be to require the subscriber to purchase a new cellular telephone.

The inability of any party to make software changes to cellular phones will result in one of two situations. Either consumers will have to incur additional costs for new cellular terminals whenever upgrades to systems are introduced or cellular carriers will introduce on a fragmented basis (or even refrain from implementing) upgrades to their systems. Neither of these scenarios is acceptable.

The inability to make software changes to cellular terminals will also make cellular systems less competitive with PCS systems. This is due to the fact that there is no Part 24 PCS rule comparable to Section 22.919. The disparity between the Part 22 cellular rules and the Part 24 PCS rules will prevent cellular carriers from being able to

deploy new digital services as quickly as their PCS counterparts.[6]

Ericsson asserts that the adverse impact which will result from the adoption of Section 22.919 is neither a situation which cellular carriers or manufacturers want, nor one which the Commission intended.

III. Ability of Section 22.919 To Combat Fraud

Having demonstrated that Section 22.919 will have severe consequences for the cellular industry unless modified, and recognizing that the ultimate purpose in promulgating Section 22.919 is to help curb the growing problem of cellular fraud, it is necessary to evaluate whether the rule accomplishes its intended purpose. Ericsson submits that it does not.

To ameliorate the impact of Section 22.919 on subscribers as well as on the manufacturing community, the Commission stated that the rule would be applicable to cellular terminals for which applications for initial type acceptance were filed after January 1, 1995. In effect, the Commission grandfathered all 20,000,000 cellular terminals

[6] The disparate treatment of Part 22 cellular CMRS licensees and Part 24 PCS CMRS licensees also raises issues of regulatory parity in the context of the requirements of the Omnibus Budget Reconciliation Act of 1993.

currently in operation as well as the millions of cellular terminals which will be placed in service after January 1, 1995 based upon applications for type acceptance filed prior to January 1, 1995.

Without attempting to sound flippant about a very serious problem, the fact that there are so many terminals already in the marketplace whose electronic information can be manipulated for illegal purposes, suggests that Section 22.919 will have very little impact on the fraud problem. Those entities who commit fraud by illegally tampering with ESNs will be able to continue do so by using the millions of terminals that are not subject to the Section 22.919 restrictions.

In addition, to the extent the cellular industry believes the ability to upgrade the software of a cellular terminal is a desireable feature and thereby attempts to create an exception to Section 22.919 to enable manufacturers to engage in such activities, the practical ability of Section 22.919 to prevent fraud is further reduced. This is due to the fact that it is relatively easy for a hacker to manipulate an ESN if any changes are

permitted to be made in the firmware and/or software of cellular terminals which are not grandfathered.

Notwithstanding the foregoing, Ericsson believes rules can be adopted which can help to prevent fraud without having an adverse impact on the cellular industry.

IV. Authentication

In presentations previously made to the Commission CTIA recommended that cellular terminals be required to comply with an industry standard for authentication. Ericsson, through its participation in a variety of industry fora, fully believes the most effective means of preventing cellular fraud is for cellular mobile transmitters to comply with an industry standard for authentication. Authentication is a means by which the cellular service providers, who are most impacted by cellular fraud, and the manufacturing community can cooperatively work together to defeat cellular fraud. Moreover, participants in TIA's TR45 Committee and CTIA's Fraud Task Force have come to the conclusion that authentication is the most effective method to prevent cellular fraud. Accordingly, Ericsson supports CTIA's original proposal and requests the Commission take

steps to mandate an industry approved authentication standard.

Ericsson asserts the Commission can accomplish this by establishing a formal Advisory Committee to negotiate relevant regulations pursuant to the Federal Advisory Committee Act[7] and the Negotiated Rulemaking Act of 1990[8]. Among the organizations which should be part of the Advisory Committee are CTIA, representing the interests of the cellular carriers, and TIA, representing the interests of the systems and terminal manufacturing community. These parties, and others the Commission deems acceptable and appropriate to participate in such a proceeding, should be charged with promulgating proposed rules designed to prevent cellular fraud, including but not limited to, rules related to manipulation of ESNs and authentication standards.

Based on the demonstration that implementation of Section 22.919 will be detrimental to the cellular industry as presently written and the fact that Section 22.919 is not likely to eliminate or reduce cellular fraud, Ericsson submits the Commission should temporarily stay the effectiveness of Section 22.919 for a period of 6 months

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[7] 5 U.S.C. App. 2.

[8] Pub. L. 101-648, November 28, 1990.

subsequent to the time the Commission completes the negotiated rule making proceeding.

In the event the Commission chooses not to establish an Advisory Committee to conduct a Negotiated Rulemaking, Ericsson submits the Commission has another option with respect to making Section 22.919 a rule more capable of preventing cellular fraud. Rather than requiring cellular terminals to meet an industry adopted authentication standard, the Commission could make authentication optional. Section 22.919 could be amended by adding a new subsection (d) which would read as follows:

> (d) The provisions of subsections (b) and (c) shall not be applicable to mobile transmitters which are able to comply with authentication standards adopted by recognized industry standards organizations.

Modification of Section 22.919 in this regard has two benefits. First, it will maintain the regulatory impact of Section 22.919 as originally promulgated for cellular mobile terminals which do not have the ability to meet recognized industry authentication standards. To the extent Section 22.919 as presently written will prevent cellular fraud, subsection (d) is neutral. Second, it will allow modification of the electronic personality of cellular

terminals in the event recognized industry authentication standards can be met. This will prevent fraud without diminishing the many public interest benefits which can be derived by enabling software and other changes to be made to cellular mobile terminals.

V. Conclusion

Ericsson fully supports the efforts of the cellular industry to combat the growing problem of cellular fraud and is committed to assist in a resolution of the problem. However, Ericsson does not believe Section 22.919 will effectively combat the problem since there are too many cellular phones in the marketplace to which the rule is not applicable. In addition, because Section 22.919 prohibits any party, including manufacturers and carriers, from making any software or firmware changes to cellular phones, cellular service providers will not be able to upgrade their systems or provide new and enhanced services through software changes to terminals. System changes will be made available only to those subscribers who purchase new terminals.

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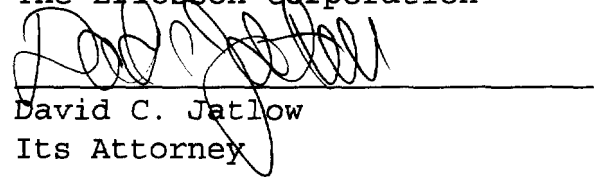
Respectfully submitted,

The Ericsson Corporation



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